Value Based Principles for Management of Reuse in the Enterprise

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1. Introduction

Pioneering work on reuse metrics and economics such as [6] has often described performance measures and management principles derived from technical concerns. In the context of systematic reuse in the enterprise, it is useful to add measures and management principles derived from financial performance concerns.

2. A Governing Objective for Systematic Reuse in the Enterprise

Systematic reuse is introduced in the enterprise to pursue many objectives, often simultaneously (e.g. "double revenues while achieving ever higher levels of quality"). Sometimes these objectives conflict, and an overall governing objective is needed to resolve conflicts when they arise. A strategic, product market oriented governing objective (such as "achieving a dominant share of the domestic market in five years") is very appealing to managers. But product market goals such as customer satisfaction, market share, and quality, do not always have the direct link to better financial performance that they might seem to have. In fact, greater customer satisfaction, larger market share, or higher quality can actually reduce financial performance under certain circumstances [1].

A value-based management (VBM) approach [2] advocates a financial rather than strategic overall governing objective, defined as the maximization of economic value. (Put another way: In the enterprise, a systematic reuse process must support systematic value creation.) Trade-offs and conflicts among various strategic options are evaluated and resolved with respect to their contribution to this governing objective.

3. Planning/Decision Making

As observed in [3], there is no adequate substitute for a discounted cash flow analysis projected over the life of a project or program for supporting the decision making process. This involves estimating not only the Net Present Value (NPV) of an individual project (e.g. building a reuse repository), but also the overall value of the entire program with that project — compared to the value of the program without that project. (That is, the relative values of the options are compared.)

An alternative, equally valid approach introduces the concept of Economic Profit (EP)—defined as the amount a business unit (or program) earns minus a charge for the capital employed. It can be shown that discounting all projected Economic Profits over time yields a result that is equivalent to the NPV calculation. The advantage of EP is that it provides the manager a management tool (e.g. for measuring the economics and progress of a project from year to year) which preserves the integrity of multi-year cash-flow analysis and decision-making.

4. Performance Monitoring

The manager must monitor an operational, systematic reuse process on a daily basis, measure its financial performance over single and multiple periods, and re-formulate strategic options on the basis of measured phenomena.

Experience has shown that line managers, especially non-financial ones, do not easily work with cash flows, especially on a continuing basis. They do have accounting systems and information to work with. But too many modern accounting systems deliver information that could be misleading. The strength of the Economic Profit formulation is that it can serve a double purpose: for estimations in a decision-making phase (as noted in the previous section) which provide
identical information, and as an accounting-based “shorthand” that can be used for ongoing operational management and single-period performance monitoring. Economic Profit can be used to obtain a useful “first cut” NPV estimation based on single period measurements, and is considerably easier than making a full discounted cash flow analysis (although it should not be used as a proxy in the strategic decision-making task).

The quantities used in the EP calculation (e.g. equity invested, earnings) are generally available from accounting systems, and it is easy for accountants to make the small adjustment for a capital charge in order to calculate EP. Associating a cost with capital usually has an immediate effect of improving capital management by line managers. The demise of some high-profile reuse programs in the past has probably been due in part to over-utilization of capital resources (due to an attitude that “capital is free”) and a subsequent slide into unprofitability.

Other widely used measures such as ROI and cash flow do not give a direct sign about whether value is being created or destroyed—for example, an ROI of 11% on earnings of 5 million does not reveal whether the program created value or not, because it does not tell whether earnings were above the cost of the capital employed to achieve those earnings. By doing just that, Economic Profit sends a strong single-period signal about whether value is being created. (A similar measure called Economic Value Added has also become popular in many enterprises today. The principal difference is in certain adjustments for accounting distortions.)

5. Competitive Strategy

In order to create value, a systematic reuse process must be linked to competitive strategy. The two primary strategic determinants of value creation are market economics and competitive position. Using EP techniques can help draw out these influencing factors, since EP can be formulated in terms of ROI and growth. For example, growth projections can be related to market economics. If the market economics are good (e.g. in a particular networking software sector) then this supports a case made for projected high growth and EP. If market economics are depressed and overall growth is low (e.g. some defense electronics or video game sectors) then a very convincing case must be made for competing in that market (e.g. an advantaged competitive position).

By relating the benefits and costs of reuse to the sources and drivers of value creation, EP can help in developing better strategic options for the reuse process. (Often there is no awareness that options even exist.) Consider again the two major components of the EP equation, Return On Investment and growth. EP is increased by improving either of these factors. But growth and increased ROI tend to present trade-offs against each other, and the choice of which to pursue will depend on circumstances. If a business unit is consistently earning below its cost of capital, then increased ROI should be pursued over growth.

As a concrete example, domain analysis could target feature identification in the pursuit of premium pricing through successful product differentiation, increasing ROI. On the other hand, if growth is pursued, then domain analysis efforts might be directed at identifying reusable resources that help lower economic production costs to support aggressive pricing for market share. Hence, the application of domain analysis will have greater benefit if it can be linked to the competitive strategy being pursued. Prieto Díaz has observed that domain analysis is expensive, and that scarce resources should be linked with specific goals. The linkage to Economic Profit and competitive strategy can help direct the domain analysis process. For example, the strategic position assessment of VBM could be integrated with the reuse assessment described in [4]. Simos has also incorporated economic and market analysis considerations into the Organizational Domain Modeling (ODM) method [5].

In conclusion, the tools of value-based management can help managers of a systematic reuse process to link their planning, operational, and competitive measures to economic performance and provide to upper management credible evidence of process value.

6. References